

Work Order ID 165804

Tuesday, August 29, 2017 3:03:13 PM

165804

Page 1

Item ID: D4037-3 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Fwd Crossbeam
Start Date: 9/5/2017 Start Qty: 2.00 ***2*** Cust Item ID:
Required Date: 9/15/2017 Req'd Qty: 2.00 ***2*** Customer:
Reference:

Approvals: Process Plan: LM ^{DAS} 21 Date: AUG 30 2017 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ ⁹⁻⁸⁹ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4037	E								

100

0.05

100

Waterjet

Memo

1.33

FLOW CNC Waterjet

Cut blank as per file D4037-3_BLANK

208/17/09/11

110

1.68

110

HAAS 1

Memo

3.35

HAAS CNC vertical machine #1

MACHINE AS PER FOLI FA878 AND DWG

FOLIO REV: AADWG REV: E

DEBURR

★
PTO

29

DAS
1
9-89 17-09-14

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
C1				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

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Hand Finishing

DAS
1st 17-09-14
9-89

DAS
49
9-89

17/09/21

2017-09-21

556

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: <u>165804</u> Part No. <u>D4037-3</u> NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☒</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																									
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Date: <u>17.09.14</u>		Step #: <u>120</u>		QTY Effective: <u>1</u>		MRB (QSI042) Approval DAS 12 9-89 <u>17/9/20</u>																																																																									
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CMF .09 x 45° is at .150 x 45° (CMF is .030" over max tolerance) R.C. operator did not took correct origine				Acceptable. Chamber is larger due to thickness of part (1.620). Chamber is locked from surface, 0.91 ± 0.030, which is still true. Dwg chamber is over defined. Part has same strength. 44		Lead hand / Supervisor Approval Verification <u>B-P 17-09-20</u>																																																																									
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Work Order ID 165804

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Page 3

Item ID: D4037-3 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Fwd Crossbeam
 Start Date: 9/5/2017 Start Qty: 2.00 ***2*** Cust Item ID:
 Required Date: 9/15/2017 Req'd Qty: 2.00 ***2*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 *150* Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum <i>M 13804.</i> Memo	0.00 0.67		<i>START: 1:05. OV. T: 3:00 FINISH: 1:35.</i>		<i>2</i>	<i>0</i>	<i>17-09-21.</i>	<i>DAS 6 39</i>
160 *160* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00				<i>2</i>			<i>SEP 22 2017</i> <i>DAS 6 39</i>
170 *170* Packaging Packaging	Identify as per dwg & Stock Location: <i>54471</i> Memo	0.00 0.00				<i>2</i>		<i>SEP 22 2017</i>	<i>DAS 6 39</i>

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Tuesday, August 29, 2017 3:03:13 PM

165804

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N900040100

Setup Start *NS1*

Stop *NS2*

2

Cust Item ID:

Start Date: 9/5/2017 **Start Qty:** 2.00

2

Customer:

Required Date: 9/15/2017 **Req'd Qty:** 2.00

Reference:

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:**

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NB2*

Insp.

180

QC21- Final Inspection - Work Order Release

0.00

180

QC

Quality Control

Memo

0.00

DAS
21
9-89

SEP 22 2017

DAS
21
9-85



17/9/22

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :	Step #:	QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation		Disposition				Completed By	
						Lead hand / Supervisor Approval Verification	
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Root Cause		FAULT CATEGORY					
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : ☐	

Picklist Print

Tuesday, August 29, 2017 3:03:12 PM

Page 1

Work Order ID: 165804

165804

Parent Item: D4037-3

D4037-3

Parent Item Name: Fwd Crossbeam

Start Date: 9/5/2017

Required Date: 9/15/2017

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A NEW ISSUE 09-12-14 JLM VERIFIED BY:EC IPP
REV:B AS PER REV B 10-04-19 JLM VERIFIED BY:EC IPP REV:D AS
PER ECN 11-554 11-05-24 JLM VERIFIED BY:DD IPP REV C:AS PER
ECN 10-563 10-09-28 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B1.000X16.00 0		Purchased	No			100	f	1.6000	3.9	8.210526			

M6061T6B1 000X16 000

**

6061-T6 Bar 1.00 x 16.00

02/17/09/11

Location

Loc Qty

Loc Code

MAT007

1.6

m137080

1.6

138460

8

DQA: _____ Date: _____

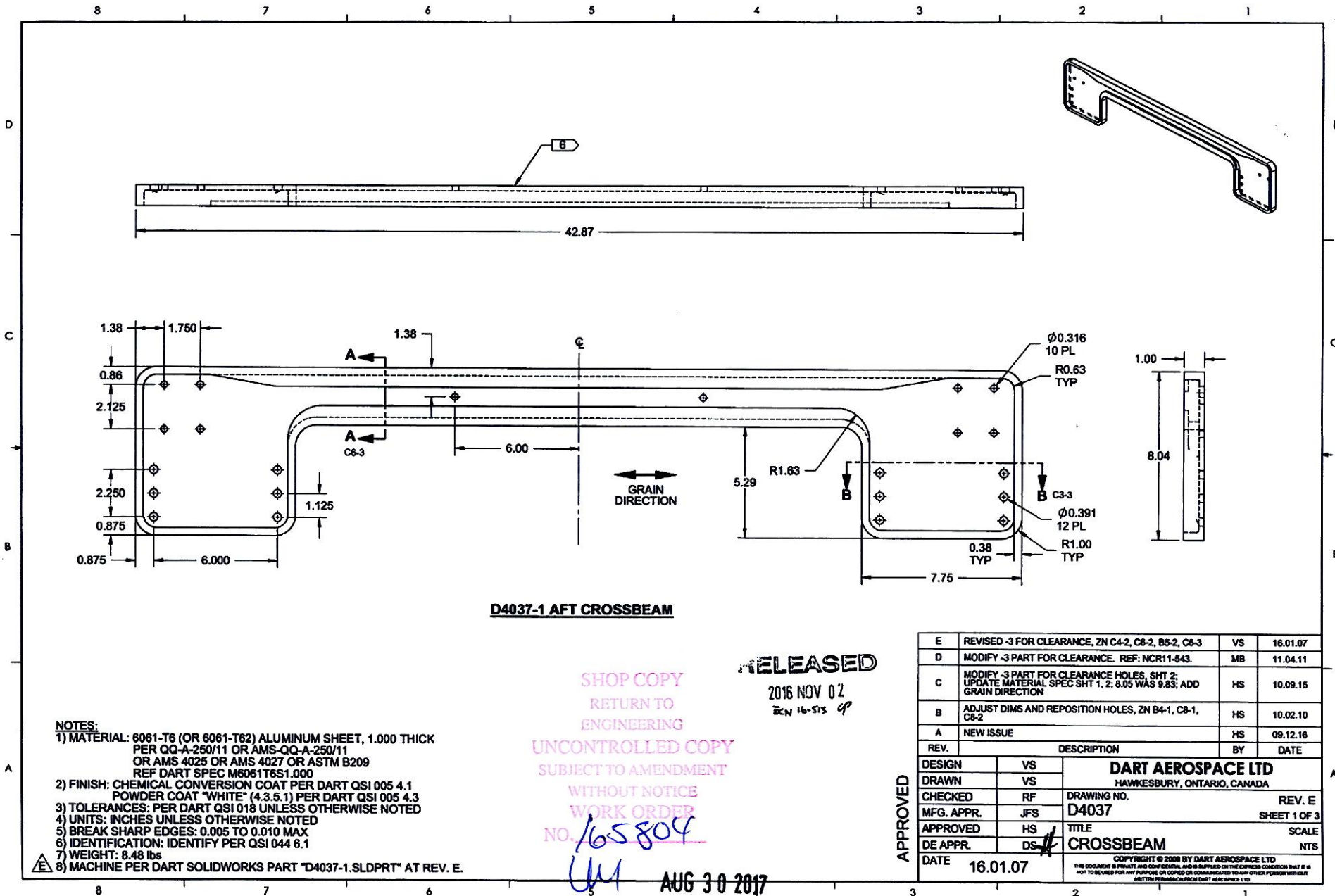


WORK ORDER NON-CONFORMANCE / UPDATE

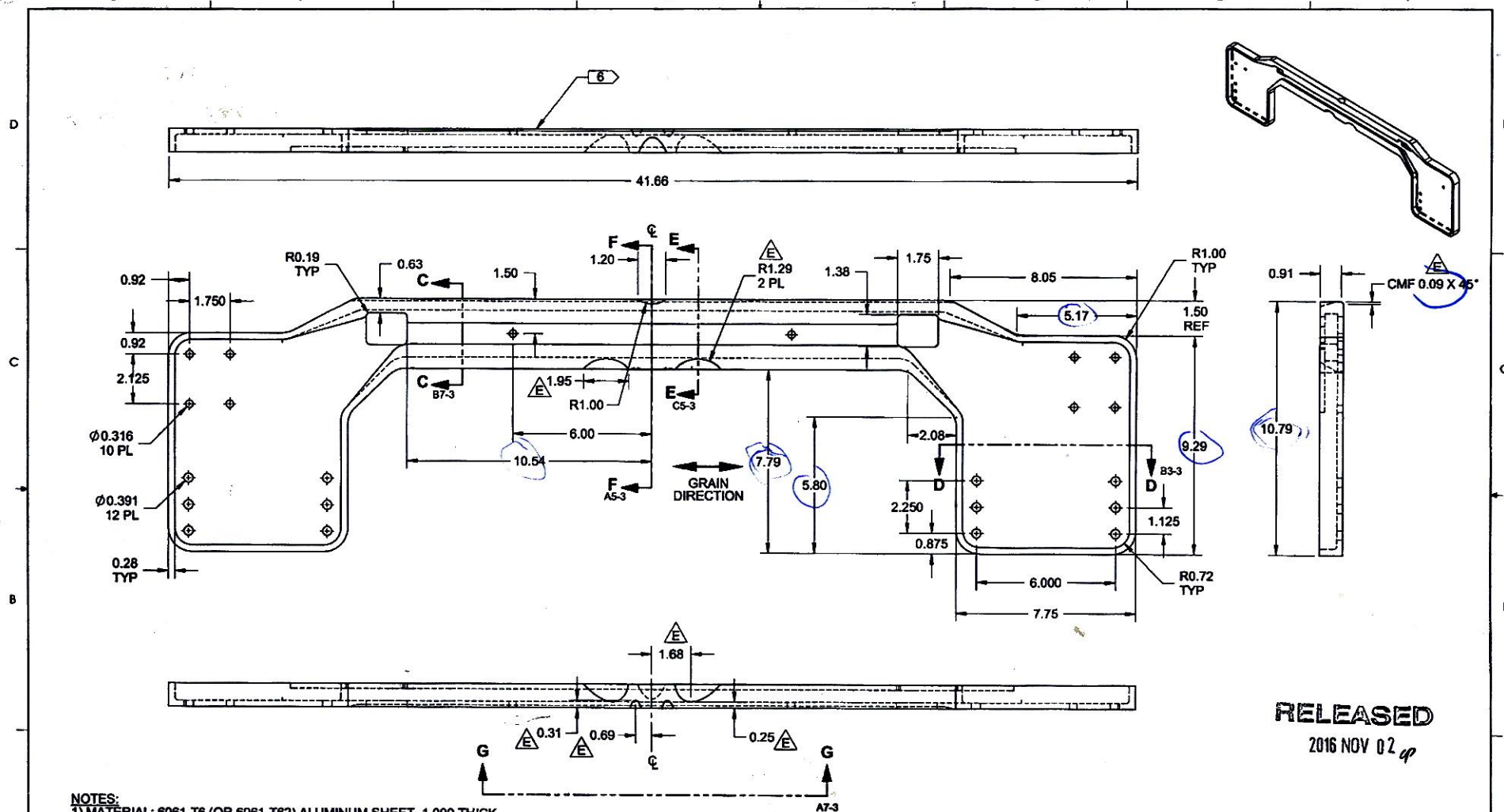
QA Closed: _____ Date: _____

Work Order update only ☐

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Date :	Step #:	QTY Effective :			MRB (QSI042) Approval	
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OTHER : ☐						



8 7 6 5 4 3 2 1



RELEASED

2016 NOV 02

NOTES:

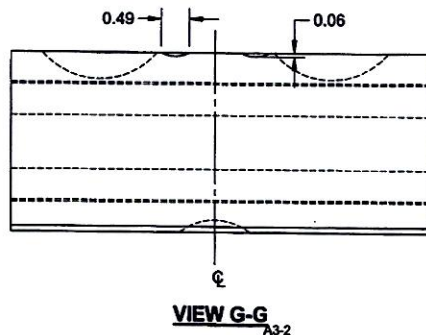
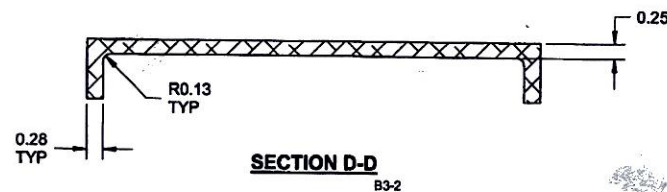
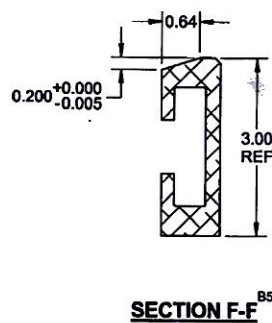
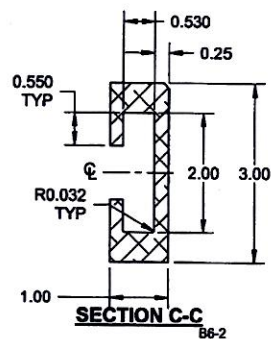
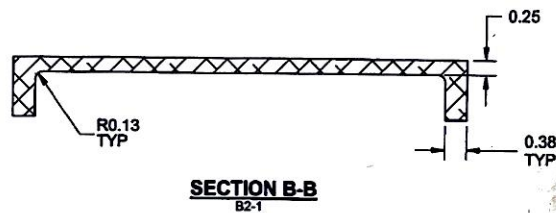
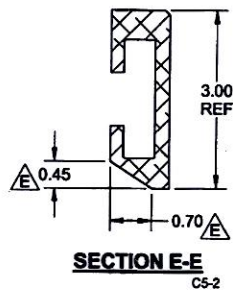
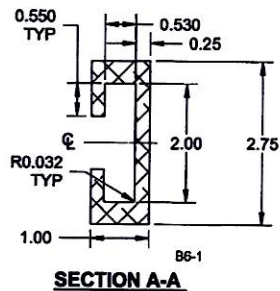
- 1) MATERIAL: 6061-T6 (OR 6061-T62) ALUMINUM SHEET, 1.000 THICK
PER QQ-A-250/11 OR AMS-QQ-A-250/11
OR AMS 4025 OR AMS 4027 OR ASTM B209
REF DART SPEC M6061T6S1.000
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "WHITE" (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 9.08 lbs
- 8) MACHINE PER DART SOLIDWORKS PART "D4037-3.SLDPRT" AT REV. E.

D4037-3 FWD CROSSBEAM

APPROVED

DESIGN	VS	DART AEROSPACE LTD	
DRAWN	VS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	JFS	D4037	SHEET 2 OF 3
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CROSSBEAM	NTS
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2016 NOV 02

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DART AEROSPACE LTD		Work Order:	165804
Description: Fwd Crossbeam		Part Number:	D4037-3
Inspection Dwg: D4037 Rev: E		Page 1 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
41.66	+/-0.030					
0.92	+/-0.030	0.918	✓		Kt-05	verm.
1.75	+/-0.030	1.750	✓		Kt-05	verm.
0.92	+/-0.030	0.919	✓		" "	" "
2.125	+/-0.010	2.125	✓		" "	" "
Ø0.316	+0.006/-0.001	0.316	✓		" "	" "
Ø0.391	+0.006/-0.001	0.391	✓		" "	" "
0.28	+/-0.030	0.282	✓		" "	" "
R0.19	+/-0.030	0.190	✓		—	R-G
0.63	+/-0.030	0.630	✓		Kt-05	verm.
1.50	+/-0.030	1.503	✓		" "	" "
1.20	+/-0.030	1.205	✓		" "	" "
1.95	+/-0.030	1.950	✓		" "	" "
6.00	+/-0.030	6.000	✓		" "	" "
10.54	+/-0.030	10.545	✓		CNC-02	verm.
1.38	+/-0.030	1.380	✓		Kt-05	verm.
1.75	+/-0.030	1.750	✓		" "	" "
7.79	+/-0.030	7.788	✓		31006	H-G
5.80	+/-0.030	5.800	✓		31006	H-G
2.250	+/-0.010	2.250	✓		Kt-05	verm.
0.875	+/-0.010	0.874	✓		" "	" "
6.000	+/-0.010	6.000	✓		" "	" "
7.75	+/-0.030	7.750	✓		" "	" "
1.125	+/-0.010	1.125	✓		" "	" "
9.29	+/-0.030	9.290	✓		CNC-02	verm.
5.17	+/-0.030	5.170	✓		Kt-05	verm.
10.79	+/-0.030	10.792	✓		31006	H-G
0.91	+/-0.030	0.940	✓		Kt-05	verm.
0.09 x 45°	+/-0.030 x +/-0.5°	0.087 x 45	✓		" "	" "
0.31	+/-0.030	0.313	✓		Kt-05	verm.
0.25	+/-0.030	0.250	✓		" "	" "
0.530	+/-0.010	0.530	✓		Pin	—
0.25	+/-0.030	0.253	✓		Kt-05	verm.
0.550	+/-0.010	0.530	✓		Kt-05	verm.
3.00	+/-0.030	3.000	✓		Kt-05	verm.
2.00	+/-0.030	2.003	✓		Kt-05	verm.
1.00	+/-0.030	1.024	✓		Kt-05	verm.

DART AEROSPACE LTD		Work Order: 165804
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FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
R0.32	+/-0.030	0.030	✓		—	R-G
0.200	+/-0.010	0.200	✓		Kt-05	ven
0.64	+/-0.030	0.640	✓		Kt-05	...
0.45	+/-0.030	0.450	✓		in	...
0.70	+/-0.030	0.700	✓		in	...
0.25	+/-0.030	0.250	✓		05011351	M1010.
R0.13	+/-0.030	0.130	✓		—	R-G
0.49	+/-0.030	0.490	✓		Kt-05	...
0.06	+/-0.030	0.060	✓		in	...

Measured by: ^{DAS} 1 ₉₋₈₉	Audited by: ^{DAS} 49 ₈₋₈₉	Preliminary Approval:
Date: 17-09-14	Date: 17/09/21	Date:

Rev	Date	Change	Revised by	Approved
A	10.06.08	New Issue	KJ	
B	10.10.07	Dimensions updated per Dwg Rev C	KJ	
C	11.06.21	Dwg Rev updated	KJ	
D	17.02.16	Dimensions updated per Dwg Rev E	KJ	